

May 29, 2003

TO: Internal File

FROM: Priscilla Burton, Environmental Scientist III/Soils, Team Lead

RE: Star Point Waste Fuel Mine Permit Application, Sunnyside Cogeneration Associates Inc., Star Point Waste Fuel Mine, PRO 007/042-PM02A-1

SUMMARY:

Sunnyside Cogeneration Associates is applying for this permit to mine the refuse remaining after the closure of the Star Point Mine.

Construction of the refuse pile began in 1970, with rejects from the Star Point Mine wet processing of Run of Mine (R.O.M.) coal from the Wattis, Third and Hiawatha seams. Use of the refuse disposal site continued until mine closure in 1997 (Exhibit 624.210a, Reserve Assessment of Star Point Coal Refuse Site). The quality of the refuse changed over time as improvements were made to the processing of the R.O.M. coal. The most deeply buried refuse has greater btu/lb and is more fine than the material above. Indications are that 30% of the refuse is coal fines having the higher fuel rating. The remainder is coarser fragments that will be crushed and blended with the fines. Approximately 192,000 cu yds of waste from the Price River Coal AML project (Panther Mine) was transferred to this refuse pile in 1988 (personal communication with MaryAnn Wright, Louis Amodt and Chris Rhorer, May 15, 2003).

Two reclamation scenarios are proposed for the disturbed area:

- (1) the Final Reclamation Scenario will be followed if the refuse pile is completely re-mined.
- (2) the Bonding Scenario Reclamation describes reclamation of the site if only a portion of the refuse is utilized for fuel.

The Application indicates that subsoil salvaged from the expansion of the refuse pile in 1982 (area shown on Map 222.100b) will be redistributed over the Star Point Waste Fuel Mine site at reclamation. In the Bonding Scenario, the entire 235,000 cu yds of salvaged subsoil will be returned to the disturbed area.

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Map 542.200g outlines that 2.7 acres will receive 4 feet of substitute topsoil cover and 59 acres of the former refuse pile will receive the remainder of the subsoil pile with a minimum coverage of twelve inches (Section 242), for a total of up to 235,500 cu yds of substitute topsoil removed (Map 542.200g) from the subsoil storage pile.

Under the Final Reclamation scenario, there will be no subsoil left stockpiled at final reclamation (personal communication with Scott Carlson, May 23, 2003), but this is not reflected in the narrative in Section 542.700, page 500-32.

Less substitute topsoil cover is not acceptable for the Final Reclamation Scenario for the following reasons:

- The entire soil profile was removed from the site (down to eighty four inches) as reported on page 6 of Appendix 8-3 of Exhibit 222. The type of material beneath the salvaged soil was not indicated in the Star Point Mine Plan, but would likely be bedrock or strongly alkaline (pH 9.0) layers like the C2ca horizon or strongly cemented layers (Appendix 8-3 of Exhibit 222).
- Soil exposed after 50 years of burial beneath 100 feet of refuse is likely to be severely compacted. The plan to rip to a depth of twenty-four inches and cover with twelve inches of subsoil will provide a rooting depth of 12 to 36 inches. Such a shallow soil interfacing with a compacted zone beneath will limit root penetration and curtail plant growth, affecting diversity.
- Leachates from the refuse may have penetrated into the buried soil foundation making unsuitable growing conditions within the rooting zone described above.
- Regulation 645-301-242.100 and the Performance Standards of R645-301-250 require the Division to ensure that the topsoil material removed and stockpiled is replaced is redistributed over the disturbed area.

Consequently, the Division has required that all the 235, 000 cu yds of substitute topsoil are returned to the disturbed area under the Final Reclamation Scenario. The narrative in Section 542.700 must reflect this requirement of Regulation R645-301-242.100 *et seq.*

- The plan indicates in Exhibit 112.500a that the acreage of refuse piles A, B, and C and the Disposal Area is 81.67 acres. The stockpiled subsoil (235,000 cu yds) will cover the **entire** disturbed area to a depth of about twenty inches. The stockpiled subsoil will cover the 59 acres of former refuse pile and the 2.7 acres of coal mine waste discard to a depth of twenty nine inches.

Under both scenarios unusable refuse will be permanently placed in the former slurry ponds north of the refuse pile. The discarded refuse will be compacted in lifts of four feet into a 4h:1v slope. The Information supplied with the application indicates that the refuse samples taken in 1987 had acid forming potential. The refuse was sampled again in 2001, but not for acid/toxic characteristics. The plan calls for monitoring of the refuse placed in the settling basins

for acid and toxic characteristics just prior to final reclamation, so that toxic waste or waste with the potential for acid-formation or with elevated Boron or Selenium can be covered with four feet of substitute topsoil from the subsoil pile.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

Analysis:

Exhibit 112.230a documents the 1994 correspondence from the Office of Surface Mining concerning the exemption from AML fees for the material obtained from the Sunnyside Mine Wash Plant. This letter seems to pave the way for such an exemption for the Starpoint Mine Refuse Pile, but correspondence from OSM is required for this new source of coal waste for the SCA plant.

Section 112.500 states that Sunnyside Cogeneration Associates and the United States, Bureau of Land Management (BLM), and Plateau Mining Corporation (PMC) own the surface land within the permit area.

The application states that Cypress Plateau Mining Corporation's name was changed to Plateau Mining Corporation and that all references to Cypress Plateau infer Plateau Mining Corporation.

Exhibit 112.230a documents the 1994 correspondence from the Office of Surface Mining concerning the exemption from AML fees for the material obtained from the Sunnyside Mine Wash Plant. This letter seems to pave the way for such an exemption for the Starpoint Mine Refuse Pile, but correspondence from OSM is required for this new source of coal waste for the SCA plant. As of this date, Brian Burnett, a lawyer for SCA, is following through with this required correspondence (personal communication with Scott Carlson of PSOMAS, May 14, 2003).

Findings:

R645-301-112.230, R645-300-147, The application must describe payment of AML fees or contain an exemption from payment from the Office of Surface Mining.

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RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

SCA acquired the coal refuse from Plateau Mining Corp on January 31, 2002. Documentation of the applicant's right of entry are contained in Exhibits 114.100a, 114.100b, and 114.200a.

The permit area is located in Township 15 South Range 8 East, SLB&M Sections 10 & 15.

Findings:

The information provided meets the Right of Entry requirements of the Regulations.

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

Subsoil that was removed from the refuse pile site in 1982 [during the ownership of Cypress Plateau Mining Corporation (CPMC)] will be used as substitute topsoil. The applicant uses the term subsoil throughout the mining and reclamation plan in referring to substitute topsoil.

The location of the existing topsoil (subsoil) stockpile pile is shown on Maps 222.100a and 222.100b as stated in Section 234 of the application.

Findings:

The information provided meets the requirements for Permit Application Format and Contents.

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

Psomas & Associates of Salt Lake City, Utah wrote the Star Point Waste Fuel Mining and Reclamation Plan under the direction of Scott Carlson, P.E.

The reserve exploration program (Exhibit 624.200a) was conducted by Miltech Energy Services of Lingonier, Pennsylvania in 2001 under the direction of Brian F. Miller, P.E.

Laboratory analysis of refuse samples for % moisture, % ash, Btu/lb, and % sulfur was conducted by Commercial Testing & Engineering Co. of Huntington, Utah.

Plateau Mining Company officials collected the refuse samples reported in Tables 624.100 a, b, c, (with Identification Numbers 87-R-1 through 87-R-9); Bookcliff's Laboratories analyzed these samples; sample locations are shown on map 222.100a.

New with this submittal is Table 624.100d, which is a compilation of various unspecified consultants work. Table 624.100d was acquired from the Star Point Mining and Reclamation Plan (007006). Apparently the names of the consultants who produced the work were not kept with the table. The information in the Table is integral to the discussion written by Kent Crofts in Exhibit 624.230a, Evaluation of Toxic and Acid Forming Properties, included in the Star Point Waste Fuel Application. Therefore, the inclusion of Table 624.100d is acceptable to the Division, in spite of the fact that it lacks source information.

Findings:

The information provided is adequate for the purposes of the Regulations for Reporting of Technical Data.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

The public notice in App 117.200b indicates the permit area is 152.81 acres. This figure is ninety-nine percent accurate, according to the permit area Map 111.100a. The 153.32 acre permit area is broken into the following parcels on Map 111.100a:

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- 40 acres of leased BLM land,
- 6.28 acres of land owned by Plateau Mining Corporation, and
- 107.04 acres of land owned by SCA are in the permit area.

Exhibit 112.500a, Land Classifications within the Permit Area, is a table of the acres owned by the federal government, SCA and PMC and the number of pre-law, post-law, undisturbed and reclaimed acres. The disturbed area includes 3.6 acres that have been reclaimed by Plateau Mining Corp. in 2001 (Section 117.300).

According to the Star Point Mine reduction in permit area application (AM02D-1), Sunnyside Cogeneration Associates purchased 171.20 acres (the refuse pile and subsoil stockpile and soil borrow area). The soil borrow area is not contemplated for this permit application as the subsoil stockpile will be used for substitute topsoil.

Map 111.100a, SCA/Star Point Waste Fuel Permit Boundary Map, shows location of the permit area and gives a detailed legal description. The permit area is divided into two areas, the refuse pile and the subsoil stockpile (substitute topsoil) area. The refuse pile is covered by MSHA number #42-02334 for the Refuse Pile and #1211-UT-09-02334-01 for the Coarse Refuse Pile.

Findings:

The information provided is adequate for the purposes of the Environmental Resource Information, Permit Area requirements of the Regulations.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

Section 411.140 states that there are no historic resources eligible for listing on the National Register of Historic Places within the permit area, but there are some adjacent to the permit area. This statement is based upon the historic/archaeological report written by Kevin C. O'Dell of Sagebrush Archaeological Consultants, L.L.C. in 1998 (included in Exhibit 411.140a). The report indicates in its introduction that there were four historic sites located in the Wattis area during a 1980 survey by Archaeological-Environmental Research Corporation (AERC). Map 411.110 shows the locations of historical sites, and provides a key to the identities of the eligible sites as noted in the 1998 Sagebrush Consultant's report (Exhibit 411.110a).

A report of historic/archaeological investigation from 1980/1981 was included in the Exhibit 411.140a. This report came from the Intermountain Antiquities Computer System State of Utah, Division of State History.

A summary of the history of Wattis (included in the Exhibit 411.140a) was credited to Norman and Hauck, 1980.

Findings:

The information provided meets the Historic and Archaeological requirements of the Regulations.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

The Order III Soil Survey of Carbon County conducted by the Soil Conservation Service in 1988 included the permit area proposed for the Star Point Waste Fuel Mine.

The location of the refuse pile was surveyed prior to disturbance in 1981 (see Exhibit 222).

Table 222.100a Permit Area Soil Types itemizes six soil types for the 153 acre permit area. At an Order III level, the predominant soil types are Doney, Hernandez, and Strych. These map units are described in Exhibit 222.300b. Map 222.100a SCA/Star Point Waste Fuel Soils Map shows soil and refuse sample locations. Map 222.100b SCA/Star Point Waste Fuel Soils Disturbed Area Map shows the extent of the pre and post-law disturbed areas. Within the disturbed area boundaries, the pre-existing soils would probably have been Gerst, Strych or Hernandez.

Topsoil and subsoil was salvaged from beneath the refuse pile in 1982. The material was segregated in two piles. The subsoil pile (C horizon) was transferred to SCA for the proposed Star Point Waste Fuel Mine and the topsoil pile (upper horizons A & B) remained with Plateau Mining Corp (C/007/006). The quality of the stockpiled subsoil is reported to be 235,000 cu yds and is represented by the C horizon samples included in Table 243. The subsoil material meets the suitability requirements for use as substitute topsoil.

Table 243 indicates the location of soils removed from the post-law site. These locations are indicated on Map 222.100a. The area of removal as shown on Map 222.100d of the Star

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Point Mining and Reclamation Plan as approximately six acres, not the entire 47 post-law disturbed area (Exhibit 112.500a). The Division concludes that entire soil profile was removed from the site (down to eighty-four inches) as reported in Appendix 8E of Exhibit 222. The type of material beneath the salvaged soil was not indicated in the Star Point Mine Plan, but would likely be strongly alkaline layers like the C2ca horizon or strongly cemented layers or possibly bedrock.

Findings:

The information provided meets the requirements of the Environmental Soil Resource requirements of the Regulations.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.22; R645-301-411.

Analysis:

Pre-Mining land use is described in Section 411.100 as wildlife and grazing, administered by the BLM as part of the Wattis Grazing Allotment (Section 411.120). The wildlife and grazing land use is better ascribed to the adjoining lands, as the historic use of the land within the permit area was for the town of Wattis (Section 411.200).

The land is zoned MG-1 Mining and Grazing (Section 411.130). Section 411.130 itemizes the use of lands adjacent to the permit area, including recent oil and gas development. County Road 290 adjacent to the permit area is used for access to Gentry Mountain for recreation and maintenance of county facilities and as a route to the oil and gas developments adjacent to the permit area.

Findings:

Information provided in the application meets the minimum Land Use Resource Information requirements of the regulations.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

The Star Point Waste Fuel Surface Geology Map 624.100a locates the proposed mine site on pediments formed from the Mancos Shale and Quaternary deposits. Underneath the refuse, the Mancos shale member is hundreds of feet thick. The Ferron Sandstone member lies approximately 1200 feet below the shale unit and is a source for natural gas and ground water. The exceptionally low conductivities of the shale will prevent downward migration water from the refuse site to the first aquifer below the refuse piles.

Surface drainage from the site flows into sediment ponds that discharge into ephemeral tributaries of Serviceberry Creek as illustrated on Map 722.200. Serviceberry then conveys the water to Miller Creek, which is a tributary of the Price River (Section 532 and 533).

Ground water rights within or adjacent to the Star Point Waste Fuel Mine operations are listed in Table 724.100a. All ground water rights were for underground use in the Star Point Mine. Surface water rights are listed in Table 724.200b.

Areas of irrigated land is designated on Figure 724.200a. All of this irrigated land is downstream of the proposed Star Point Waste Fuel Mine. Operation of the proposed Star Point Waste Fuel Mine will not affect the quality of downstream waters. All discharges from the proposed permit area to major stream channels are regulated by a UPDES permit from the Utah Division of Water Resources.

Applicability of Statutory Exclusions

Findings:

The Division finds that the proposed Star Point Waste Fuel Mine is not located in an alluvial valley floor.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

The Natural Resource Conservation Service (NRCS) was contacted for their opinion on the farmland status of the permit area (Exhibit 221). The NRCS concluded that there was no prime farmland due to arid soils and lack of irrigation water to the site.

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The Division notes that there are 77 acres of Hernandez soils (Map Unit 53) listed in Table 222.100a for the permit area. This map unit is described in the 1988 Soil Conservation Service Carbon County Survey as prime farmland soils if irrigated.

Findings:

The Division concurs with the Natural Resource Information Service that there are no prime farmlands within the permit area.

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

The mine life is estimated to be twenty years. Volume of waste to be mined is estimated at 4,710,000 cu yds. Approximately 1,430,000 cu yds will be removed from the site every five years for the first fifteen years. The final five years in the life of the mine will see 410,000 cu yds moved from the site (see Map 521.100e). Table 523.100a relates the tonnage of coal mine waste to be moved as 200,000 tons/year which equates to 833 tons/day, 104 tons/hour, 15 truck trips/day or two trucks an hour.

Three refuse piles (A, B, and C) are illustrated on Maps 521.100e and 731.120b. Map 521.1100d and e shows the sequence of mining (Section 521).

The consultant's report found in Exhibit 624.200a recommended sorting, crushing and blending of the coarse with the fine waste, but the Permittee does not intend to conduct those operations at the site (Division communication with Mr. Rusty Netz, January 6, 2003).

Findings:

The information provided meets the requirements the Operation Plan Mining Operations and Facilities requirements of the Regulations.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

Analysis:

The application indicates that fugitive dust will be controlled with applications of water and/or calcium chloride or potassium chloride or other biodegradeable wetting agents. Section 526.400 indicates that the air quality permit can be found in Exhibit 421a. As described in the correspondence of Exhibit 421a, the Starpoint Refuse Pile has been given a “small source exemption” by the Division of Air Quality, so long as the operation remains as described in the Small Source Exemption Registration correspondence dated February 8, 2002.

Findings:

The information provided meets the requirements of the Air Pollution Control Plan requirements of the Regulations.

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

An exploration program in 2001 by Miltech Energy Services of Lingonier, Pennsylvania (Exhibit 624.200a), provides information on the quality, size, volume and density of the raw material. The report indicates that there are 4.7 million cubic yards of refuse, with an average density of 105 lbs/cu ft (1.42 tons/cu yd). At 12% moisture, the site could yield 7.3 million tons of coal refuse. Average quality of the raw material increases with depth to 8,000 – 9,000 btu/lb. Particles with the greatest heat content are located near the bottom of the pile and represent 30% of the refuse pile. Screening of the large fragments from the pile will improve product quality.

(Two pits are labeled BH-1 on Figure 1-1 of Appendix 624.200a and Drawing No. 01-372-1 of Appendix 624.200a have been correctly labeled on Map 222.100a.)

Findings:

The information provided meets the reporting requirements for Coal Recovery of the Regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

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Analysis:

Topsoil Removal and Storage

Subsoil to be used as substitute topsoil was removed from the refuse pile site in 1982 under the ownership of Cypress Plateau Mining Corporation (CPMC). The applicant uses the term subsoil throughout the mining and reclamation plan.

The location of subsoil pile is shown on Map 521.100d, SCA/Star Point Waste Fuel Refuse Pile Operation Plan Overview, and on Map 111.100a SCA/Star Point Waste Fuel Refuse Permit Boundary Survey. The volume of substitute topsoil has been surveyed at 192,000 cu yds by CPMC. SCA estimates that 235,000 cu yds will be available during reclamation due to a swelling of the material. (The compaction factor of 0.3 was used based on published research (page 200-9).)

Section 234 describes subsoil storage for use as substitute topsoil. The subsoil is stockpiled with 2h:1v slopes and is vegetated. Exhibit 234 outlines the seed mix used in 1982 on the subsoil stockpile. Erosion from the stockpile is controlled by vegetation, a sediment trap, and runoff control terraces (Section 234).

Findings:

The information provided meets the requirements of the Operations Topsoil and Subsoil requirements of the Regulations.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Coal Mine Waste

The Disposal Area is shown on Map 521.100f (Section 528.300-321 and Section 528.322). This map shows the proposed disposal area covering 5.5 acres in a former slurry pond. The application anticipates that the slurry pond location may hold 3.1% of the current volume of refuse or 145,000 cu yds. The material will be compacted into a 4h:1v slope against the existing topography. The sloping sides of the disposal area will face north, east and southeast. The disposal area is designed for an average height of forty feet deep at the center, with a maximum of 55 feet at its highest point.

The coal mine waste will be routinely compacted to prevent combustion and wind-borne transport. The plan indicates that the coal mine waste will be covered with four feet of soil from the subsoil pile at final reclamation (Section 528.300-321).

Refuse Piles

Two MSHA numbers exist for the site:

Refuse Pile I.D. # 42-02334
Coarse Refuse Pile I.D. #1211-UT-09-02334-01.

The refuse piles that have been in existence at the Star Point Mine will be utilized for fuel at the Sunnyside Refuse Cogeneration Plant. If coal mine waste fires erupt during the operation, they will be extinguished by covering or excavating the burning material. According to Section 528.323, soil imported from the Neilson Pit located in Wellington, Utah may be used for this purpose. The applicant does not plan on using salvaged, stockpiled substitute topsoil for this purpose.

Findings:

The information provided meets the Operations Refuse and Spoil and Waste requirements of the Regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid- and Toxic-Forming Materials and Underground Development Waste

The plan indicates in Sections 542.700 and 728.320 that the refuse is potentially acid/toxic forming. Supportive information for this statement is found in Section 624.330. Chemical characteristics of the refuse are found in Section 624.100 and 624.220-230 and Exhibit 542.700a, CPMC 1995 Response to DOGM Midterm Review. Recent research on refuse fuel quality is reported in Exhibit 624.210a, Reserve Assessment of Star Point Coal Refuse Site, prepared by Miltech Energy Services Inc., Ligonier Pennsylvania.

Table 624.100c presents the results of sampling of the surface four feet of the refuse pile in 1987. Locations are shown on Map 222.100a. The results indicate that the refuse is acid

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forming based upon total sulfur values (average total sulfur acid/base potential of -9.6 Tons/1000 Tons and a range of -36 to positive 37 Tons CaCO₃/1000Ton). When only pyritic sulfur is taken into account, the Acid/Base Potential ranges between -18.8 and 11.1 Tons CaCO₃/1000 Tons. The average pyritic Acid/Base Potential of the refuse reported in Table 624.100c is 0.5 Tons CaCO₃/1000 Tons.

Findings:

The information provided meets the minimum requirements of the Regulations for Operation Plan Hydrologic Information

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

Two reclamation scenarios are proposed: one for complete elimination of the refuse pile is referred to as the Final Reclamation Scenario. The second called Bonding Scenario Reclamation describes reclamation of the site if only a portion of the refuse is utilized for fuel.

Findings:

The information provided is adequate for the General requirements of the Regulations.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

Post mining land use is described in Section 412.200 and Table 412.100a as wildlife, grazing and recreation. Management plans (required by R645-301-412.120) are synonymous with the reclamation plan for the site. The plan indicates that the timing and extent of grazing use will be made after bond-release by the land owner(s). A portion of the site falls within the

BLM Wattis Grazing Allotment and will be managed by that agency. Apparently the allotment includes 3,500 acres of Public Land with an allocation of about 100 Animal Unit Months (AUM's) (Section 411.120). A letter of understanding (dated December 23, 1980) from Plateau Mining Company to the BLM concerning the post-mining land use is found in Exhibit 412.200a. Communications between the BLM and SCA are taking place to arrive at a letter of agreement for this latest application (meeting between DOGM and Scott Carlson on 05/14/2003).

The application indicates that the subsoil pile may not be completely removed from land owned by Plateau Mining Corporation. A letter of concurrence (dated March 5, 2003) from PMC for this scenario is found in Exhibit 412.200a.

Findings:

The information provided is not adequate post mining land use requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-412.200, (1) Comments from the Bureau of Land Management concerning the implementation of the proposed post-mining land use are required as part of the application.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

Two reclamation scenarios are proposed:

- (3) the Final Reclamation Scenario will be followed if the refuse pile is completely re-mined.
- (4) the Bonding Scenario Reclamation describes reclamation of the site if only a portion of the refuse is utilized for fuel.

Approximate original contours of the area are known from a 1976 aerial photographs of the site (Section 553.100) and from exploration work conducted in 2001 (Exhibit 624.210a). The plan indicates that, "to the maximum extent technically practical, the site will be backfilled and graded to achieve the assumed approximate original contour." Maps 542.200a, b & e are based on pre-existing contours for the refuse site as known from the 1976 aerial survey. Map 542.200c, Subsoil Area Bonding Scenario, the reclamation topography is based on the pre-

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existing contours available from the aerial photography referred to in Section 553.110 (personal communication with Scott Carlson, PSOMAS, on May 9, 2003).

Under the Bonding Scenario grading of the substitute topsoil pile will be as shown on Map 542.200c. The narrative in Section 542.700 indicates that subsoil cover replacement depths will be similar to those described in Exhibit 542.700a CPMC 1995 Response to DOGM Midterm Review, with 3h:1v slopes and an eighteen inch cover depth over the slopes and four feet of cover over the level pile surface. This application retains the soil cover depth described, but varies from the 1995 plan by eliminating the terraces, scarifying the flat surfaces and gouging all surfaces of the pile. As with the Final Reclamation Scenario, the Division will require that regardless of the pile height in the Bonding Scenario, all the subsoil material is moved to the site for reclamation.

If all the refuse is utilized (Final Reclamation Scenario), the reclamation topography will look like that shown on Map 542.200e, with slopes graded no steeper than 3h:1 vertical. Under this Final Reclamation scenario, there will be minimal grading of the site. Compacted surfaces such as the asphalt parking lot, the building foundations, and the flat refuse surface will be scarified to a depth of twenty four inches. Buried soil in the vicinity of the office buildings will be evaluated for use as cover. Subsoil will be redistributed over the refuse pile portions of the regraded site (Table 542.200a and Map 521.100f and Map 542.200g). Map 542.200g outlines that 2.7 acres will receive 4 feet of substitute topsoil cover and 59 acres of the former refuse pile will receive up to twelve inches of cover (Section 242), for a total of up to 235,500 cu yds of substitute topsoil removed (Map 542.200g) from the subsoil storage pile.

Under the Final Reclamation scenario, there will be no subsoil left stockpiled at final reclamation (personal communication with Scott Carlson, May 23, 2003), but this is not reflected in the narrative in Section 542.700, page 500-32. The narrative states

“It is anticipated that in the event of the final reclamation that significantly less soil cover is required than the bonding scenario. The actual amount needed is dependent on the quality of the soil materials beneath the pile which will be determined by soil testing as described in Section 242. In addition to the required amount, the remaining salvaged subsoil materials in the subsoil pile will be redistributed for reclamation in accordance with R645-301-212.”

Less substitute topsoil cover is not acceptable for the Final Reclamation Scenario for the following reasons:

- The entire soil profile was removed from the site (down to eighty four inches) as reported on page 6 of Appendix 8-3 of Exhibit 222. The type of material beneath the salvaged soil was not indicated in the Star Point Mine Plan, but would likely be bedrock or strongly alkaline (pH 9.0) layers like the C2ca horizon or strongly cemented layers (Appendix 8-3 of Exhibit 222).

- Soil exposed after 50 years of burial beneath 100 feet of refuse is likely to be severely compacted. The plan to rip to a depth of twenty-four inches and cover with twelve inches of subsoil will provide a rooting depth of 12 to 36 inches. Such a shallow soil interfacing with a compacted zone beneath will limit root penetration and curtail plant growth, affecting diversity.
- Leachates from the refuse may have penetrated into the buried soil foundation making unsuitable growing conditions within the rooting zone described above.
- Regulation 645-301-242.100 and the Performance Standards of R645-301-250 require the Division to ensure that the topsoil material removed and stockpiled is replaced is redistributed over the disturbed area.

Consequently, the Division has required that all the 235, 000 cu yds of substitute topsoil are returned to the disturbed area under the Final Reclamation Scenario. The narrative in Section 542.700 must reflect this requirement of Regulation R645-301-242.100 *et seq.*

The plan indicates in Exhibit 112.500a that the acreage of refuse piles A, B, and C and the Disposal Area is 81.67 acres. The stockpiled subsoil (235,000 cu yds) will cover the **entire** disturbed area to a depth of about twenty inches. The stockpiled subsoil will cover the 59 acres of former refuse pile and the 2.7 acres of coal mine waste discard to a depth of twenty nine inches.

Under both scenarios, unused refuse will be placed in the former slurry ponds and compacted in four foot lifts as described in Section 528.300.

Findings:

The information provided is not adequate to supply general information for the backfilling and grading requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-553 and R645-301-242.100, The application should indicate that all 235,000 cu yds of substitute topsoil will be moved to the mined out site in both the bonding and final reclamation scenarios. (Statements to the contrary appear in Section 548.700, page 500-32).

TOPSOIL AND SUBSOIL

TECHNICAL MEMO

Analysis:

Redistribution

Reclamation of the refuse under the Bonding Scenario will require 235,000 loose cubic yards of substitute topsoil (Table 542.200b). Map 542.200c shows the existing and final contours of the topsoil storage area under the Bonding Scenario. Reclamation cross-sections for this scenario are shown in Map 542.200d.

Under the Final Reclamation Scenario, the Applicant will explore underneath the refuse pile for suitable substitute topsoil at reclamation (Section 224). Specific locations identified for evaluation as substitute topsoil are mentioned in Section 233. Under the Final Reclamation Scenario, up to 65,000 loose cubic yards will be excavated for use as substitute topsoil over what remains of the refuse pile (Table 542.200a). Map 542.200e illustrates the final contours of the subsoil pile and refuse pile for this scenario. For the refuse pile, these contours are the same as those photographed in the 1976 aerial survey. Map 542.200c illustrates the reclamation of the subsoil pile under the bonding scenario and the proposed reclamation contours are based on the aerial photography taken in 1976, described on page 500-30 of the application and from the exploration conducted in 2001 (Exhibit 624.210a, personal communication with Scott Carlson, May 9, 2003).

Section 534 describes the construction of additional roads for access to the Subsoil Area to improve the operation of hauling topsoil. The designs for this road are shown on Map 534.100a. The designs for this road are shown on Map 534.100a. Plans for soil salvage during future road development are described in Section 232.

Compacted areas will be ripped twenty four inches deep prior to substitute topsoil placement (Section 242). All areas will be roughened with gouging (Section 242 and 553.100). Maps 542.200f & g outline the areas to be ripped and gouged. Basically, the flat surface of the refuse pile and severely compacted areas such as the asphalt parking lot and the building foundations will be ripped and all areas including regraded slopes will be gouged. Track-mounted equipment will be utilized for spreading substitute topsoil over designated areas (Section 242 and 553.100 and Maps 542.200f & g). Areas that are not presently covered with refuse will not receive substitute topsoil cover. The substitute topsoil will be replaced at a uniform thickness

Based on current Division recommendations (see page 69 of The Practical Guide to Reclamation in Utah, a 2000 Division publication, available on line at www.dogm.nr.state.ut.us), fertilizer will not be used. The Division has recommended achieving a healthy nitrogen balance over time with the inclusion of native legumes in the seed mix, rather than with fertilization.

The Star Point Mine was reclaimed in 2001 - 2002 and there was no fertilizer applied. The Des Bee Dove Mine was reclaimed using Treble super phosphate fertilizer incorporated into

the topsoil layer with gouging. The phosphorus fertilization scheme might be refined based upon a comparison of the success of these two reclamation sites over the next ten years.

Findings:

The information provided in the application is not considered adequate to meet the minimum Topsoil Redistribution requirement of the regulations, see deficiency previously stated under Reclamation Plan, Backfilling and Grading R645-301-242.100.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Table 624.200c presents information on the acid/toxic nature of the refuse. The Division calculates that waste is acid forming based upon pyritic sulfur values. Three of twenty nine samples have levels of plant available selenium in the surface three inches in exceedence of the recommended 0.1 ppm limit established in the Division's 1988 Guidelines for the Management of Topsoil and Overburden. Six of the twenty nine samples approach the limit for Boron.

The coal mine waste will be routinely sampled for characteristics of combustion, but not for acid/toxic forming properties. The plan indicates in Section 542.700 that the refuse pile will be monitored for acid/toxic properties just prior to final reclamation. The plan specifies one sample per acre will be taken and describes the parameters to be sampled Exhibit 830.100a, Bonding Scenario Reclamation Cost Estimate, outlines 25 samples to be taken for acid/ toxic evaluation and 10 other soil samples for vegetation purposes. The acid/toxic parameters will be run on soils in the 2.7 acre disposal area and the refuse pile. The other 10 samples will be drawn from areas that will receive no additional cover soil (as shown on Map 542.200g). These areas will be sampled as follows: a visual check for oil & grease; testing for soil growth parameters, and compaction (section 242).

Finding:

The information provided in the application meets the minimum Hydrologic Reclamation requirements of the regulations.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

TECHNICAL MEMO

Analysis:

Erosion control measures include surface roughening, mulching, and gouging (Section 242). Map 742.100 Alternate Sediment Controls illustrates the details of construction of surface roughening/benching, silt fencing, rock check dams, sediment traps water bars, berms, and straw bale check dams. As stated in Section 542.200, under the heading "Sedimentation Pond Removal and Interim Sediment Control," use of these structures during final reclamation will be utilized in the locations shown on Maps 731.720a (drainages) and 731.720b (culverts), with field changes made as necessary; Map 542.200c shows proposed locations on the Topsoil stockpile. Installation of straw bales and silt fences will be according to the illustration in Figure 542.200a.

The application indicates that rocks found during excavation of the refuse pile may be separated and stockpiled for final placement on the reclaimed slopes (Section 528.300-321). The use of large coarse fragments on the surface of the reclaim site will help prevent erosion of the substitute topsoil that is high in clay and susceptible to erosion. The rock fragments will also help to blend the site with the undisturbed surroundings.

Findings:

The information provided in the application meets the minimum Stabilization of Surface areas requirement of the regulations.

RECOMMENDATIONS:

The application should not be approved until the deficiencies noted in this memo are resolved.